

Impacts of Climate Variation and Change Events on Salmon Populations in Southern British Columbia: Implications for Conservation and Restoration

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We examined life history responses of salmon to variations in hydrological and thermal regimes to identify biophysical models of how aquatic “climate” regimes may influence selected populations of salmon in southern British Columbia. Models were then applied to determine the potential contributions of climate variation and change (CVC) events to population trends exhibited by salmon stocks originating in and around Georgia Basin. Results indicate a pervasive influence of CVC events on behaviour and production events of the subject populations. CVC impacts are mediated through both freshwater and marine mechanisms associated with El Nino-La Nina events and “warm” versus “cold” phases of the Pacific Interdecadal Oscillation. We conclude that “climate warming” episodes pose serious threats to the sustainability of salmon populations in the southern end of their range including Georgia Basin and Puget Sound. This recommends the development of strategies that minimize impacts of uncertain CVC scenarios on salmon population resilience and that maximize the adaptive capacity for fisheries or habitat planning and management decisions. New integrated assessment and management models are recommended to deal with complex impact and adaptation responses of salmon, managers and stakeholders to CVC events.